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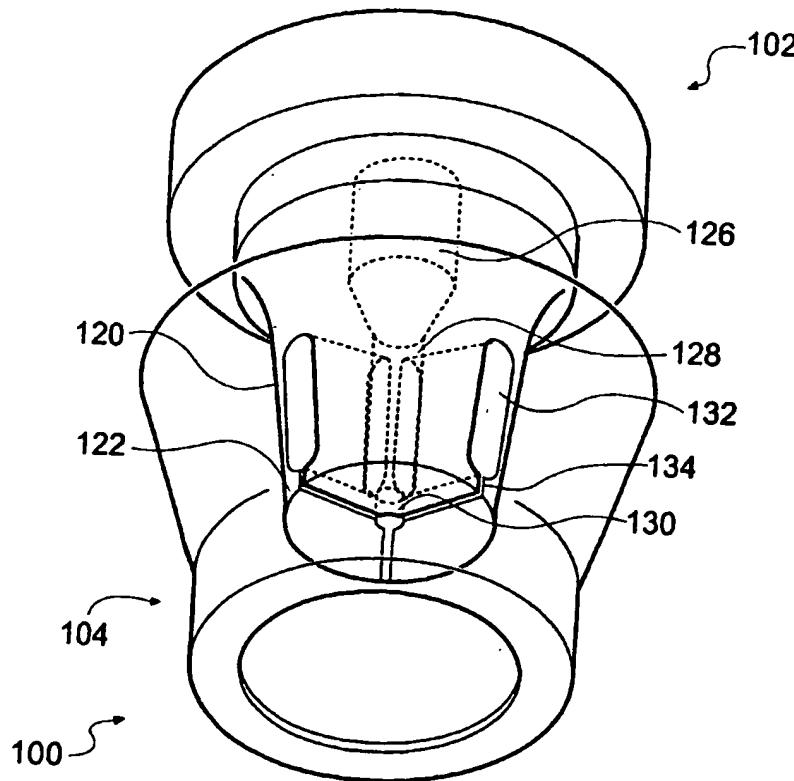
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[Continued on next page](54) Title: **FABRICATION OF MICROSTRUCTURED OPTICAL FIBRE**

(57) **Abstract:** Microstructured optical fibre is fabricated using extrusion. The main design of optical fibre has a core suspended in an outer wall by a plurality of struts. A specially designed extruder die is used which comprises a central feed channel, flow diversion channels arranged to divert material radially outwards into a welding chamber formed within the die, a core forming conduit arranged to receive material by direct onward passage from the central feed channel, and a nozzle having an outer part in flow communication with the welding chamber and an inner part in flow communication with the core forming conduit, to respectively define an outer wall and core of the preform. With this design a relatively thick outer wall can be combined with thin struts (to ensure extinction of the optical mode field) and a core of any desired diameter or other thickness dimension in the case of non-circular cores. As well as glass, the extrusion process is suitable for use with polymers. The microstructured optical fibre is considered to have many potential device applications, in particular for non-linear devices, lasers and amplifiers.

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